

# Up To Date

## NASA IV&V Facility Educator Resource Center Newsletter

October, 2008

Volume 1, Issue 3

### NASA IV&V Facility ERC

#### Featured Implementer: Stacy Jennings

Stacy Jennings participated in the September Robotics ERC Workshop and became certified to use the Robotics Loan Kit consisting of 6 LEGO NXT Robots and laptops with LEGO Mindstorms NXT-G software.

Jennings immediately took what she learned to her gifted classrooms in Preston High School, Valley Elementary, Fellowsville Elementary, and Terra Alta East Preston.

Students used robotics to learn the basics of programming. They then solved a maze with their robots. The final task was for students to make their own challenges using multiple sensors.

Great way to spark the interest in Engineering! Interested in bringing robotics to your learners? Contact Marcie at [marcie.raol@ivv.nasa.gov](mailto:marcie.raol@ivv.nasa.gov) or 304-367-8436 to find out how.



Stacy Jennings's students,  
Preston County,  
studying robotics..

A Hubble Space Telescope malfunction that affects the storage and transmittal of science data causes STS-125 to be delayed. NASA now will fly space shuttle Endeavour's STS-126 mission to the International Space Station first, with the STS-125 servicing mission moving into 2009. Endeavour is targeted to launch Nov 16. Managers may move the target date up, if possible. Read more at [http://www.nasa.gov/mission\\_pages/shuttle/main/index.html](http://www.nasa.gov/mission_pages/shuttle/main/index.html)



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#### NASA Update: Mars Rover Heads Towards Bigger Crater



Opportunity is headed southeast, toward a crater more than 20 times wider than "Victoria Crater."  
Image credit: NASA/JPL/ASU

NASA's Mars Rover Opportunity is setting its sights on "Endeavour," a crater more than 20 times larger than its home for the past two years. To reach the crater, Opportunity will need to drive approximately 12 km,

matching the total distance it has traveled since landing on Mars in 2004. It will travel about 110 yards a day, taking 2 years to reach the crater.

Steve Squyres, principal investigator for the science instruments on Opportunity comments, "I would love to see that view from the rim (of Endeavour), but even if we never get there, as we move southward we expect to be getting to younger and younger layers of rock on the surface. Also, there are large craters to the south that we think are sources of cobbles that we want to examine out on the plain. Some of the cobbles are samples of layers deeper than Opportunity will

ever see, and we expect to find more cobbles as we head toward the south."

New resources will aid Opportunity on the journey. Imaging from orbit of details smaller than the rover itself, using the High Resolution Imaging Science Experiment (HiRISE) camera on NASA's Mars Reconnaissance Orbiter, will be used to identify drive paths and potential hazards. Also, the new version of flight software uplinked to the rovers in 2006, will boost their ability to autonomously choose routes and avoid hazards.

Visit [www.jpl.nasa.gov/news/news.cfm?release=2008-176](http://www.jpl.nasa.gov/news/news.cfm?release=2008-176) for complete article.

#### Important Dates:

- October
  - Launch of Chandrayaan 1, ISRO (Indian Lunar Orbiter)
  - Launch of TacSat-3
- October 5 Launch of IBEX
- October 6 MESSENGER 2nd Flyby of Mercury
- October 8 Imagine Mars **Workshop at ERC**
- ~~October 10+~~ Launch of STS 125 Hubble Space Telescope Servicing Mission 4
- October 14 Lunar Nautics **Workshop at ERC**
- Oct 16 F1 in Schools **Workshop at ERC**
- Oct 19 Launch of IBEX
- Oct 28 Engineering Design Challenge: Launch Platform **Workshop at ERC**

## Upcoming Workshops: NASA IV&V Facility ERC

### Imagine and Explore Mars

October 8th, 6:00-8:00

For educators of grades 3-8. Learn great new ideas to teach concepts related to Mars, get updated about current Mars missions, and explore a new national educational initiative that leads learners to create a futuristic Mars community. Lots of multidisciplinary activity options, so if you are a middle school teacher, bring along members of your team!

**Lunar Nautics**, October 14th, 6:00-8:00.

For educators of grades 3-8. Explore this new curriculum! See NASA Product Article, pg 3, for more information.

### F1 in Schools Workshop:

**STEM in Action**, October 16, 9:00-3:30

Participants will use the standard Engineering-based, five-step process, by modifying a CAD Design using 3-D Parametric Modeling software. Teams will Analyze their designs using CFD – Computational Fluid Dynamics and Make their F1 cars using Computer-Aided-Manufacturing and Computer-Numerically-Controlled technologies. Then Test in a wind tunnel courtesy of the Mid Atlantic Aerospace Complex.

**Don't Forget to Register at least one week in advance!**

**This month at the ERC, take part in an Engineering Design Challenge, and explore the Moon and Mars.**

### Engineering Design Challenge:

**Launch Platform**, October 28, 6:00-8:00

For educators of grades 5-12. Learn an engaging way to teach the engineering design process used by NASA engineers. Then build and test your own model thrust structure.

### At the ERC in November:

1<sup>st</sup> Energy Series: Science of Energy, 10-4:00

Grades 5-12, has an educator kit!

4<sup>th</sup> NASA Math & Science, Grades PK-2, 12-3:00

Kindernauts cert. if you stay until 4:30

11<sup>th</sup> GIS, 6-8:00, Grades 5-12

18<sup>th</sup> CONNECT Math, 6-8:00, Grades 5-8

## Featured NASA IV&V Equipment Loan Kit: Echo the Bat

Echo the Bat is a perfect kit for grades 3-8. Through a story and video following Echo the Bat, learners are exposed to the concepts of biodiversity, remote sensing, and the properties of light. Accompanying hands on activities allow learners an opportunity to further explore these concepts.

The kit includes 10 *The Adventures of Echo the Bat* books, DVD with the story narrated and animated, binder of class activities, and materials to complete the hands on activities (including a class set of topographical maps).

To read the story and see the activities visit <http://science.hq.nasa.gov/kids/imagers/echohome.html>.

To schedule a workshop on this or one of our other kits at your school or with 10+ educators, please contact Marcie at [marcie.raol@ivv.nasa.gov](mailto:marcie.raol@ivv.nasa.gov) or 304-367-8436.



## NASA eClips

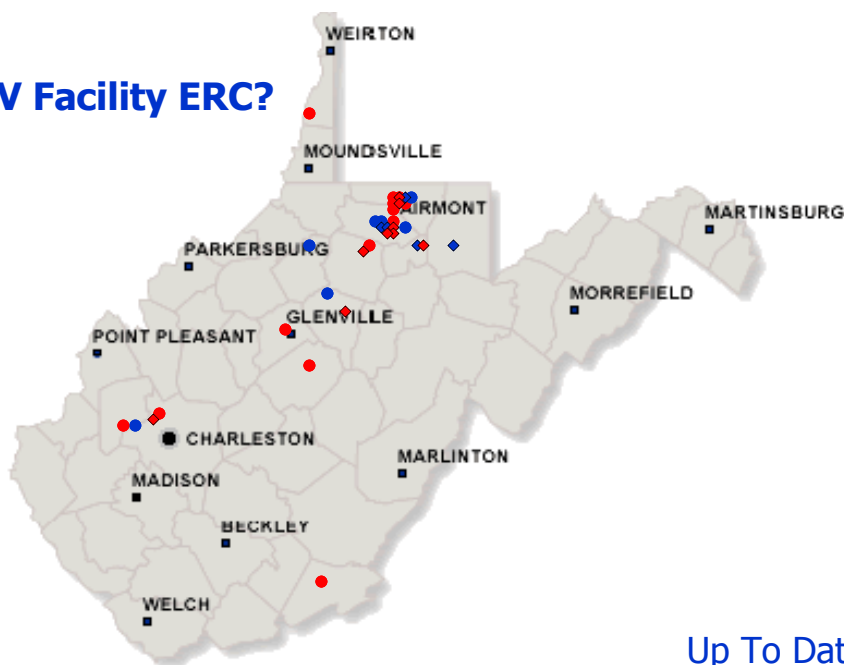
NASA announces a free new Web-based educational project. NASA eClips are short, 5 to 10 minute video segments available on the Internet. Over 220 video segments are projected to be available this school year.

NASA eClips are separated into grade-appropriate topics that tie into standards-based instruction. The project contains downloadable video segments and teacher guides.

Look forward to new video and educational content highlighting current research and innovations throughout the school year. The video clips are available for streaming at <http://www.nasa.gov/education/nasaeclips>.

## Where in WV is the NASA IV&V Facility ERC?

- ◆ September Equipment Loan
- ◆ September Workshops
- ◆ September Video Conferencing
- 2008-2009 Equipment Loan
- 2008-2009 Workshop
- 2008-2009 Video Conferencing



Earth Science Week  
[www.earthsciweek.org](http://www.earthsciweek.org)  
October 12<sup>th</sup>-18<sup>th</sup>

## Featured WV Scientist: West Virginia State Climatologist



Kevin Law, West Virginia  
State Climatologist

State Climatologists The state office serves to provide the best understanding

Did you know that West Virginia has a state climatologist? Well, meet Kevin Law. He is part of the WV State Climate Center, and is a member of the American Association of

of the climate of WV and has the ability and knowledge to provide climate data and information. Law helps people, such as researchers, engineers and attorneys from private firms, and government agencies, obtain the weather and climate data they need. Most common requests are monthly/daily temperature and precipitation data.

Law grew up near Buckhannon, WV and earned his Bachelor's Degree in Geography from WVU. He continued his education at Ohio State University, earning a Master's Degree and Ph.D. in Atmospheric Science.

In addition to serving as the state climatologist, Law teaches meteorology at Marshall University and is hoping to establish the only meteorology program within the state. Currently, Marshall does offer a minor meteorology due to Law's efforts.

Law became the state climatologist so he can have more access to the general public and other organizations, such as the National Weather Service. Plans for future projects involving both students and the general public are underway.

## Featured STEM Career: Space Station Payload Team

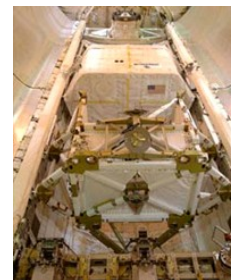
### Job Description:

Pack the Space Shuttle to carry cargo to the International Space Station. Must work with providers of payload (developers from internal NASA organizations, industry, academia, and world wide space agencies). Work with other cultures to coordinate the sharing of cargo among international spacecraft. Understanding of scientific equipment, space station hardware, and equipment for crew and how to keep it safe during transport necessary. Team attitude necessary to work with Payload team.

### Quote from Current Job Holder:

"I like to work with small payloads, and work with payload developers through the entire payload development, certification and approval process... It has been fun to go from start to finish and then see it launch." Joy Norris, Stowage Payload Integration Manager in reference to the Teaching from Space Office's payload of basil seeds and research materials for STS 118.

SPACEHAB cargo module seen near middle of payload in this image.  
Image Credit:  
NASA/Dimitri Gerondidakis



### Learn More:

Visit [http://www.nasa.gov/audience/foreducators/stseducation/stories/Raillan\\_Young\\_Joy\\_Norris.html](http://www.nasa.gov/audience/foreducators/stseducation/stories/Raillan_Young_Joy_Norris.html)

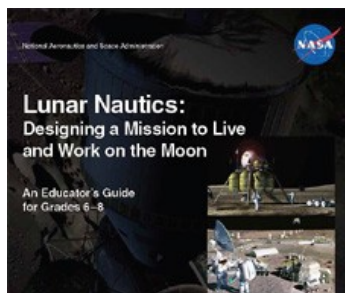
**"I'm responsible for making sure things get to the station in one piece." ~ Raillan Young**

## Featured NASA Product:

### Lunar Nautics: Designing a Mission to Live and Work on the Moon

The Lunar Nautics Educator Guide contains 40 activities for grades 6-8. Students assume roles of workers at a fictional aerospace company specializing in mission management, lunar habitat and exploration design, and scientific research. An additional CD available from CORE <http://core.nasa.gov> or your ERC contains resources, additional games, and software.

Lessons enable students to design, test and analyze a model lunar lander, a robot, and a soda bottle rocket. Other activities include building edible models of spacecraft, a solar oven to cook, and a microgravity sled as part of an underwater activity.



Our **Lunar Nautics workshop on Oct 23** will explore parts of this guide and CD. Contact Marcie at 367-8436 or [marcie.raol@ivv.nasa.gov](mailto:marcie.raol@ivv.nasa.gov) to register.

Information gathered from [http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Lunar\\_Nautics\\_Designing\\_a\\_Mission.html](http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Lunar_Nautics_Designing_a_Mission.html)

## Free Web Casts

### Imagine Mars Online Training

Providing general overview of the Imagine Mars Project Friday, October 3, 8:30pm  
<http://imaginemars.jpl.nasa.gov/getstarted/educatorchats.html>

### Hubble Public Lecture at STSI

*An Idea that Would Not Die: The Story of the Hubble Space Telescope and the Visionaries Who Built It* Tues, Oct 7, 8:00pm  
[http://hubblesite.org/about\\_us/public-talks.shtml](http://hubblesite.org/about_us/public-talks.shtml)

### NSTA/NSDL Web Seminar:

*Beyond Penguins and Polar Bears: Physical Science from the Poles* Wed, Oct 29, 6:30pm  
[http://learningcenter.nsta.org/products/symposia\\_seminars/NSDL3/Webseminar2.aspx](http://learningcenter.nsta.org/products/symposia_seminars/NSDL3/Webseminar2.aspx)

### NASA DLN: Observing the Moon

Oct. 29, 2008, 4:00pm  
<http://dln.nasa.gov/dln/content/webcast/>

## NASA IV&V Facility ERC

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**We're on the web!**

**<http://erc.ivv.nasa.gov>**

**Submit story ideas and  
pictures to  
[marcie.raol@ivv.nasa.gov](mailto:marcie.raol@ivv.nasa.gov)**

The NASA Independent Verification and Validation Facility Educator Resource Center's goal is to serve teachers, informal educators, and preservice teachers to enable them to reach their goals. Through a grant with Fairmont State University, the NASA IV&V Facility ERC provides materials, equipment for loan, and professional development workshops both at the facility and around the state of West Virginia (scheduled upon request) for educators that reflect NASA's current research and technology.



**NASA's Swift satellite has found the most distant gamma-ray burst ever detected. The blast, designated GRB 080913, arose from an exploding star 12.8 billion light-years away.**

**[Read more at http://www.nasa.gov/mission\\_pages/swift/bursts/farthest\\_grb.html](http://www.nasa.gov/mission_pages/swift/bursts/farthest_grb.html)**

## Neat Things to Note for Your Educational Setting:

### **Send your Name Into Space:**

#### **Kepler Mission**

**Deadline:** November 1, 2008

Submit your name and it will be stored on a DVD and rocketed into space on board the Kepler spacecraft. Also provide a message up to 500 words about the mission's importance. A copy of the DVD will be given to the Smithsonian Institution's National Air and Space Museum.

<http://namesinspace.seti.org/>

#### **Rock Around the World**

Send in a rock and a tool like the one on the rover will be used to tell you it is made of, post on the web, and then you can compare it to rocks from Mars.

<http://mars.jpl.nasa.gov/rockworld/>

### **NASA Art & Design Contest**

**Grade Level:** High School and College

**Deadline:** March 15, 2009

Students are asked to submit their 2D, 3D, and digital work on the theme: Life and Work on the Moon.

<http://artcontest.larc.nasa.gov/>

### **Landsat Image Mosaic of Antarctica (LIMA) Quest Challenge**

**Grade Level:** 4<sup>th</sup> – 8<sup>th</sup>

**Preliminary Proposals:** Nov 5, 2008

Students will become scientists who study the features on Antarctica using LandSat images to develop a research question and argue the value of studying a feature based on this view of Antarctica.

<http://quest.nasa.gov/challenges/lima>

### **2009 CanSat Competition**

**Grade Level:** College Students

**Applications:** October 31, 2008

Teams of two to 10 students must design and build a space-type system called a CanSat. Each CanSat is the size of a soda can and must be built according to the specifications released by the competition organizing committee.

<http://www.cansatcompetition.com/>

### **13<sup>th</sup> Annual Institute for Global Environmental Strategies Art Contest**

**Grade Level:** 2<sup>nd</sup> - 4<sup>th</sup> grade

**Deadline:** October 24, 2008

Draw picture on the topic:

"Trees: Making a World of Difference"

Go to [www.strategies.org](http://www.strategies.org)

Click 2008 IGES Art Contest